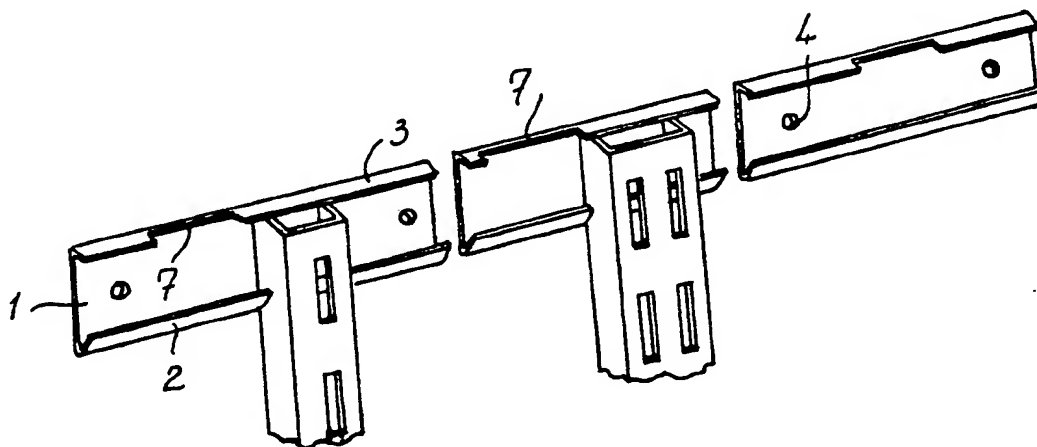




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/SE89/00058 <b>(22) International Filing Date:</b> 10 February 1989 (10.02.89) <b>(31) Priority Application Number:</b> 8800441-1 <b>(32) Priority Date:</b> 10 February 1988 (10.02.88) <b>(33) Priority Country:</b> SE  <b>(71) Applicant (for all designated States except US):</b> SPARRING ELFA AB [SE/SE]; Sorterargatan 12, S-162 15 Vällingby (SE). <b>(72) Inventor; and</b> <b>(75) Inventor/Applicant (for US only) :</b> RIEMAN, Martin [SE/SE]; Solvägen 34, S-241 00 Eslöv (SE). <b>(74) Agent:</b> AVELLAN-HULTMAN, Olle; Avellan-Hultman Patentbyrå AB, Box 5366, S-102 46 Stockholm (SE).		<b>(81) Designated States:</b> AT (European patent), AU, BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB (European patent), IT (European patent), LU (European patent), NL (European patent), NO, SE (European patent), US.  <b>Published</b> <i>With international search report.</i> <i>In English translation (filed in Swedish).</i>

**(54) Title:** HOLDING STRIP FOR SUSPENSION BARS**(57) Abstract**

A holding strip designed for suspension bars, which is known and is used to suspend various objects, e.g. brackets and shelf units etc. received on said brackets, said holding strip being designed to be screwed or in another fashion fastened, in a horizontal position, to a wall or a similar surface and designed with a rear face (1), which is to be in contact with said wall, a lower holding edge (2), which is bent obliquely upwardly and inwardly towards the room and designed to cooperate with a corresponding mounting slot of a suspension bar, as well as an upper stop edge (3), which is bent obliquely downwardly and inwardly towards the room and positioned at such a distance above the upper end of said holding edge (2) and adapted to said suspension bar in such a way, that a suspension bar (8), which is received on said holding edge (2), is prevented from being lifted and removed from said holding edge (2), because the upper side of said suspension bar will abut the lower end of said stop edge (3). In order to receive and remove a suspension bar said top edge (3) has, in one or several areas, a recess up to said rear face (1), adjustment grooves (7) for said suspension bar being formed.

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## HOLDING STRIP FOR SUSPENSION BARS

The present invention relates to a holding strip for suspension bars, which is known and used to suspend various objects, e.g. brackets and shelf units etc, carried by said brackets, the holding strip being designed to be  
5 screwed on or in another fashion be fastened, in a horizontal position, to e.g. a wall and designed with a rear face for contacting said wall and a lower holding edge bent obliquely upwardly and inwardly towards the room and designed to hold a suspension bar, which latter to this  
10 end is designed with a slot, designed in a corresponding manner, with which slot said holding edge can engage. When the suspension bar is suspended it is lowered with its suspension slot over the holding edge of the holding strip. Some holding bars are also provided with an upper  
15 edge, which is bent obliquely upwardly and inwardly towards the room and which can form a kind of shade ledge or abut the ceiling. A holding strip having a suspension bar of the known type described above is shown in Fig. 1.

20 This known type of holding strip has a serious drawback, since the suspension bar can be unhooked from the holding edge of the holding strip, if it is lifted upwardly so far that said slot is disengaged from said holding edge, which may result in that an entire shelf set or the like  
25 gets loose and tumbles.

The object of the present invention is to solve this problem and suggest a new and improved holding strip, which is designed in such a manner that a suspension bar adapted  
30 to said holding strip cannot be loosened inadvertently, because said suspension bar is in its normal mounting position secured against at least such large lifting movements that would loosen it from the holding edge of the holding strip, while it in one or several positions yet  
35 can be adapted onto the holding edge of the holding strip and loosened from it respectively.

Said suspension bar comprises, according to the present invention, a rear face in a known fashion used to screw the suspension bar to a wall or the like, and a lower holding edge bent obliquely upwardly and inwardly towards the room, on which holding edge the suspension bar, provided with a obliquely upwardly and inwardly directed mounting slot, can be hooked, and the novel feature of the invention is that said suspension bar is designed with an upper edge, which is bent obliquely downwardly and inwardly towards the room and is used as a stop edge, which prevents a removing of said suspension bar from the holding edge of said holding strip, said upper edge of said holding strip in one or several areas being cut away up to said rear face a distance which corresponds to the width of said suspension bar, thus allowing the latter to be hooked downwardly over said holding edge solely in this or these areas and subsequently be pushed in a lateral direction, sliding with its suspension slot along said holding edge into the desired position on said holding strip. An optional number of suspension bars can in this manner be adapted to just one holding strip.

Additional characterizing features and advantages of the present invention will be set forth in the following detailed description, reference being made to the accompanying drawings.

In Fig. 1 in the drawings a holding strip of a type already known is shown. In Fig. 2 a holding strip according to the present invention having two different types of suspension bars in mounted positions is shown in a perspective view. Fig. 3 shows a cross-section of the bar according to the invention with a suspension strip ready to be mounted. Fig. 4 shows in a corresponding way the suspension bar in a completely mounted and loaded position on the holding strip. Fig. 5 shows also in the same way

the suspension bar in a situation when it is being pushed past a round head of a screw, by means of which the holding strip has been screwed onto the wall; and Fig. 6 finally shows a holding strip provided with a cover or  
5 barrier strip according to the present invention.

The holding strip comprises a longitudinal bar, which can be produced in endless lengths and be cut to the desired lengths and comprises a rear face 1, a holding edge 2  
10 bent upwardly from the lower edge of said rear face and designed to hold a suspension bar and a stop edge 3 bent downwardly from said rear face and designed to prevent an inadvertent loosening of a mounted suspension bar.

15 Said rear face 1 is even and designed to be screwed or in an another way fastened to a wall or another vertical surface and to this end it is provided with screw holes 4 for screws 5, suitably having round heads, in order to obtain a better strength.

20

Holding edge 2 is bent upwardly and inwardly towards the room at a certain angle, e.g. an angle of  $30^{\circ}$ , in relation to a vertical plane, e.g. the wall.

25 Said stop edge 3 is bent from the upper edge of rear face 1 obliquely downwardly and inwardly towards the room, and thus it forms an acute angle with the wall or a vertical plane, e.g. an angle of about  $30^{\circ}$ . This angle is less critical. The outer end of the stop edge suitably is bent  
30 upwards and thus it forms a horizontal plane or a curve, against which a suspension bar abuts and is stopped, if the holding bar is lifted upwards. In one or several areas the stop edge has a recess up to rear face 1, one or several adjustment grooves 7 being formed having such a  
35 length that a suspension bar can be introduced in it and subsequently be lowered, said suspension slot engaging

holding edge 2 of the strip.

- Suspension bar 8 is known per se and comprises an essentially U-shaped profile, which along its web portion is provided with one or two series of slots 9, designed to receive shelf brackets (not shown) or the like and which adjacent its upper edge is designed with a mounting slot 10, which extends into the legs of the U-profile from those edges of said legs which abut said wall and obliquely upwardly and inwardly towards the room, said mounting slot having the same direction as the holding edge and essentially the same length. The suspension bar is adapted to the holding strip in such a way that the distance between the inner and upper end of mounting slot 10 and upper edge 11 of suspension bar 8 is not larger than the free vertical distance between holding edge 2 and stop edge 3.
- However, in a preferred embodiment of the invention the distance between the inner and upper end of mounting slot 10 and upper side 11 of suspension bar 8 is somewhat smaller than the free distance between holding edge 2 and stop edge 3 of the holding strip, and in this way suspension bar can be lifted such a distance, obliquely upwardly and inwardly towards the room, that it can be pushed past the round head 5 of a screw without disengaging it from holding edge 2 of the holding strip, which is shown in Fig. 4.
- The mounting of a suspension bar is accomplished by moving the bar towards the holding strip at an adjustment groove 7 and lowering it in order to make holding edge 2 slide into mounting slot 10 of the suspension bar, subsequent to which the suspension bar is moved in a lateral direction from adjustment groove 7 to the desired position, where it will be secured against a loosening from the holding strip by means of stop edge 3 of the holding strip.

A suspension bar can be lifted up and released in the opposite manner, provided the bar is moved to an adjustment groove 7.

- 5 In order to cover the front of the used holding strip or a portion of it a cover strip 12 can be introduced into the groove between holding edge 2 and stop edge 3, the covering strip together with the holding strip forming a
- 10 be used to prevent suspension bars from moving in a lateral direction or in relation to a side wall, such pieces of material being introduced between holding edge 2 and stop edge 3 and engaging the outer sides of the legs of said suspension bar.

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Reference Numerals

- 1 rear face
- 2 holding edge
- 3 stop edge
- 4 screw hole
- 5 screw (with a round head)
- 6 plane (3)
- 7 adjustment groove
- 8 suspension bar
- 9 slot (in 8)
- 10 mounting slot (in 8)
- 11 upper edge (of 8)
- 12 cover strip



Patent Claims

1. A holding strip for suspension bars (8), which is known and used to suspend various objects, e.g. brackets and shelf units etc. received by said brackets, said holding strip being designed to be screwed (5) or in another way fastened in a horizontal position to a wall or a corresponding surface and designed with a rear face (1), which is to contact said wall, and a lower holding edge (2), which is bent obliquely upwardly and inwardly towards the room and designed to cooperate with a corresponding mounting slot (10) of a suspension bar (8), c h a r a c - t e r i z e d in that said holding strip also is designed with an upper stop edge (3), which is bent obliquely downwardly and inwardly towards the room and placed at such a distance above the upper end of said holding edge (2) and adopted in such a way to said suspension bar (8), that a suspension bar, received on said holding edge (2), is prevented from being removed from said holding edge (2), since the upper side of said suspension bar (8) abuts and is stopped by the lower end of said stop edge (3).

2. A holding strip according to claim 1, c h a r a c - t e r i z e d in that said stop edge (3) of said holding strip, in one or several areas, has a recess up to said rear face (1), adjustment grooves (7) being formed, the length of which substantially corresponds to the width of said suspension bar and into which a suspension bar can be moved and lowered, while said mounting slot (10) of said holding bar (8) surrounds said holding edge (2), and be lifted up and removed from said holding edge (2) of said holding strip respectively.

3. A holding strip according to claim 1 or 2, c h a -

8

r a c t e r i z e d in that the distance between the upper end of said holding edge (2) of said holding strip and the lower end of said stop edge (3) is somewhat larger than the distance between the upper end of said mounting slot (10) of said suspension bar (8) and the upper edge (11) of said suspension bar, the result being that a suspension bar, in its mounted condition and while maintaining an engagement with said holding edge (2), can be lifted somewhat and preferably be pushed past a round head of a screw, however not larger to such an extent that said suspension bar can be released from said holding edge (2) of said holding strip.

4. A holding strip according to any of the preceding claims, c h a r a c t e r i z e d in that the lower end of said stop edge is bent outwardly or round-bent, an at least plane horizontal or round-bent edge being formed.

5. A holding strip according to any of the preceding claims, c h a r a c t e r i z e d in that said holding edge (2) of said holding strip as well as the corresponding mounting slot (10) of said suspension bar (8) form an angle of about  $30^{\circ}$  with the wall plane or a vertical plane.

6. A holding strip according to claim 5, c h a r a c t e r i z e d in that the stop edge of said holding strip also forms an angle of about  $30^{\circ}$  with the wall plane or a vertical plane.

7. A holding strip according to any of the preceding claims, c h a r a c t e r i z e d in that it includes a cover strip (12), designed to be introduced in an outwardly convex arcuate shape between said holding edge (2) and said stop edge (3).

9

8. A holding strip according to claim 7, c h a r a c -  
t e r i z e d in that said cover strip (12) also can be  
used, in suitable lengths, to prevent suspension bars (8)  
from being pushed in a lateral direction in relation to  
each other or in relation to a wall or the like.

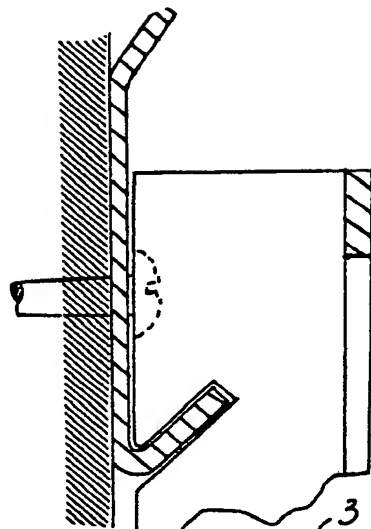


Fig. 1

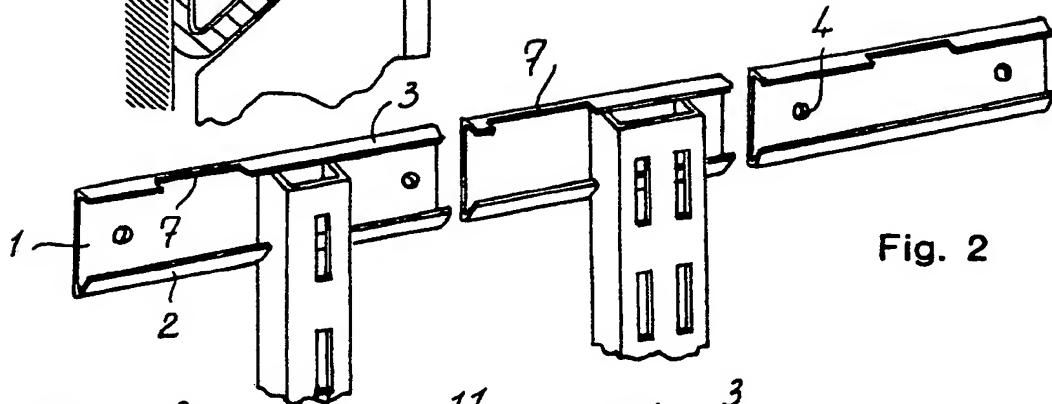


Fig. 2

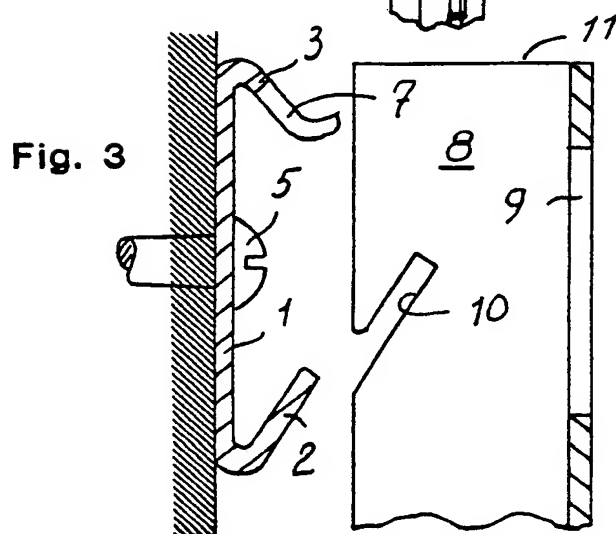


Fig. 3

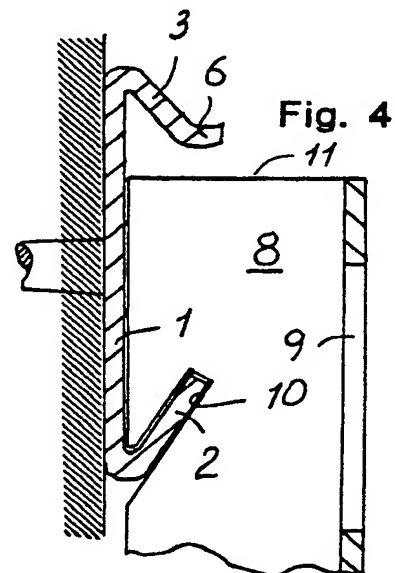


Fig. 4

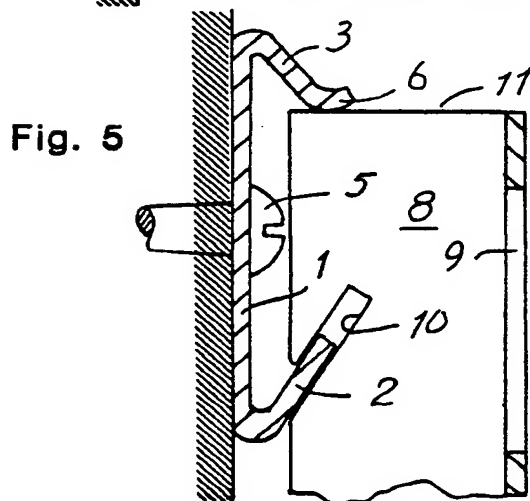


Fig. 5

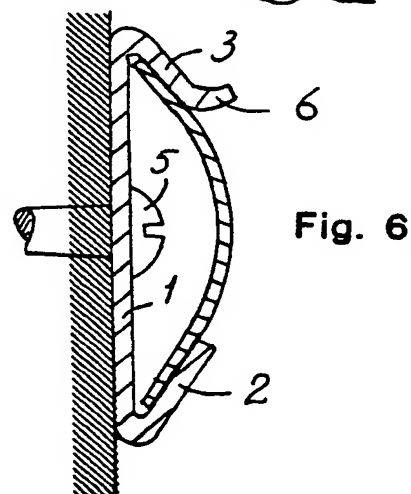


Fig. 6

# INTERNATIONAL SEARCH REPORT

International Application No PCT/SE89/00058

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (if several classification symbols apply, indicate all) <sup>6</sup> According to International Patent Classification (IPC) or to both National Classification and IPC <sup>4</sup> A 47 B 96/14								
<b>II. FIELDS SEARCHED</b> <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Minimum Documentation Searched <sup>7</sup></div> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 20%; text-align: left; border-bottom: 1px solid black;">Classification System</th> <th style="text-align: left; border-bottom: 1px solid black;">Classification Symbols</th> </tr> <tr> <td style="border-bottom: 1px solid black;">IPC 4</td> <td style="border-bottom: 1px solid black;">A 47 B 57/58, 88/20, 96/04, /08, /14; A 47 F 3/12; G 09 F 7/08, /10</td> </tr> <tr> <td style="border-bottom: 1px solid black;">US C1</td> <td style="border-bottom: 1px solid black;">1248:214,218.4,219.1; 312:140.3,4,245-247</td> </tr> </table> <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Documentation Searched other than Minimum Documentation to the extent that such Documents are included in the Fields Searched <sup>8</sup></div>			Classification System	Classification Symbols	IPC 4	A 47 B 57/58, 88/20, 96/04, /08, /14; A 47 F 3/12; G 09 F 7/08, /10	US C1	1248:214,218.4,219.1; 312:140.3,4,245-247
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IPC 4	A 47 B 57/58, 88/20, 96/04, /08, /14; A 47 F 3/12; G 09 F 7/08, /10							
US C1	1248:214,218.4,219.1; 312:140.3,4,245-247							
SE, NO, DK, FI classes as above								
<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT <sup>9</sup></b>								
Category <sup>10</sup>	Citation of Document, <sup>11</sup> with indication, where appropriate, of the relevant passages <sup>12</sup>	Relevant to Claim No. <sup>13</sup>						
A	FR, A, 643 398 (COMPAGNIE DU RONEO) 15 September 1928	1, 2						
A	SE, B, 434 871 (TELEFON AB LM ERICSSON) 20 August 1984	1, 5, 6						
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><sup>14</sup> Special categories of cited documents: <sup>15</sup></p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"A" document member of the same patent family</p> </div> </div>								
<b>IV. CERTIFICATION</b>								
Date of the Actual Completion of the International Search  1989-02-27	Date of Mailing of this International Search Report  1989 -04- 13							
International Searching Authority  Swedish Patent Office	Signature of Authorized Officer <div style="text-align: right;"> </div> Leif Vingård							

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